

REMARKS

Claims 1-3 are pending in the application and claims 7-8 are new. Support for new claim 7 is found in paragraph [0063] and support for new claim 8 is found in paragraph [0042]. No new matter has been introduced. The Examiner has rejected claims 1-3. Applicant respectfully traverses the rejection and seeks favorable reconsideration in view of the following remarks.

The Examiner rejected claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over DE 2 300 129 A ("DE '129") in view of JP 07-232,915 ("JP '915"). Notably, Applicant has enclosed an Information Disclosure Statement that provides an English translation of DE '129. The Examiner asserts that "DE '129 discloses a process and apparatus for purifying waste gas or air containing fluorine." Office Action, p. 2. The Examiner concedes that DE '129 fails to teach "the use of ammonium hydroxide as the regenerant." Office Action, p. 3. However, the Examiner asserts that JP '915 teaches a process for recovering F ion from waste water by contacting the F ion with ammonium hydroxide. Office Action, p. 3. In addition, the Examiner concedes that JP '915 fails to teach that the ammonium hydroxide is a waste ammonium hydroxide. However, the Examiner asserts that "it would have been obvious to one skilled in the art to use any source of ammonium hydroxide..." Office Action, p. 3. The Examiner further asserts that "[i]t would have been obvious to one of ordinary skill in the art...to regenerate the anion exchange resin in the process of DE '129 with ammonium hydroxide as suggested by JP '916 because ammonium hydroxide can be used effectively to regenerate the anion exchange resin." Office Action, p. 3-4. Applicant respectfully traverses the rejection and seeks favorable reconsideration in view of the following remarks.

Amended independent claim 1 claims "A method for removing fluorine gas from a selected environment, comprising the steps of: (a) contacting the fluorine gas from the environment with a selected quantity of water in an ion-exchange resin, thereby to generate an acidic solution of hydrofluoric acid..." Support for the amendment to independent claim 1 is found in paragraph [0038] of the application as filed. No new matter has been introduced. Applicant respectfully submits that the teachings of DE '129, either alone or in combination with JP '916, fail to achieve the invention as claimed in amended independent claim 1. In contrast to the present invention, DE '129 teaches supplying the exhaust gases to a gas scrubber 1. See page 3 of the English translation and the Figure (element 1). DE '129 fails to teach or even suggest

contacting the exhaust gases with water in the anion exchanger 6, 6'. *See the Figure.*

Accordingly, DE '129 fails to teach "contacting the fluorine gas...with a selected quantity of water in an ion-exchange resin..." as claimed in amended independent claim 1.

Like DE '129, JP '916 also fails to teach the invention as claimed in amended independent claim 1. Indeed, JP '916 teaches introducing a waste water containing F⁻ ion into an active carbon tower and then subsequently into a series of ion-exchange resin towers. JP '916 fails to teach or even suggest "contacting the fluorine gas...with a selected quantity of water in an ion-exchange resin..." as claimed in amended independent claim 1. Thus, JP '916, either alone or in combination with DE '129, fails to achieve the invention as claimed in amended independent claim 1. Accordingly, Applicant respectfully submits that amended independent claim 1 is not rendered obvious by DE '129, alone or in combination with JP '916 and respectfully request withdrawal of the rejection to independent claim 1.

Applicant submits that dependent claims 2-3 and 7-8 are similarly not rendered obvious by DE '129 or JP '916, alone or in combination, for at least the reasons set forth above with respect to amended independent claim 1. In addition, Applicant respectfully submits that dependent claim 2 is not rendered obvious by the teachings of DE '129 and JP '916, because they both fail to teach or even suggest regenerating the ion-exchange resin with *waste* ammonium hydroxide. Indeed, both DE '129 and JP '916 fail to teach using a waste stream as a regenerant. DE '129 teaches away from using waste ammonium hydroxide. DE '129 teaches an elaborate method of regenerating the anion exchangers using potassium liquor (KOH) and subsequently adding calcium hydroxide to the calcium salts resulting from the regeneration to assist in precipitating the calcium salts. *See Abstract.* DE '129 further teaches pumping the potassium liquor from a container and into the anion exchanger. *See the Figure (element 9).* In contrast to the Examiner's assertion that any caustic solution, beside KOH, may be used to regenerate the anion exchange, DE '129 fails to teach or even suggest the use of any other regenerant. Apparently the process and apparatus of DE '129 were designed around the use of KOH which called for adding calcium hydroxide to the waste stream (*See element 11*) and a fine filter (*See element 12*) to remove the calcium salts. *See the Figure.* Thus, DE '129 teaches away from using ammonium hydroxide let alone *waste* ammonium hydroxide. Similarly, DE '129 and JP '916 fail to teach or even suggest regenerating the ion-exchange resin with waste ammonium hydroxide generated from either a process associated with the fluorine gas as claimed in

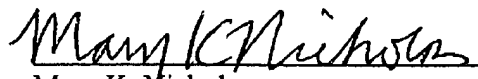
dependent claim 3 or from a CMP process as claimed in dependent claim 8. The Examiner asserts that "it would have been obvious to one skilled in the art to use any source of ammonium hydroxide as long...[as it] can regenerate the basic ion-exchange resins." Applicants respectfully disagree. Neither DE '129 nor JP '916 teach or even suggest that a source of waste ammonium hydroxide was even available for use in their processes. For these further reasons, Applicant respectfully submits that dependent claims 2-3 and 8 are not rendered obvious by DE '129 either alone or in combination with JP '916.

In addition, neither DE '129 nor JP '916 teach or even suggest that "the step of contacting the fluorine gas from the semiconductor process with a selected quantity of water in the ion-exchange resin comprises exhausting the fluorine gas from the vacuum pump into the selected quantity of water" as claimed in dependent claim 7. Thus, for this additional reasons, dependent claim 7 is not rendered obvious by DE '129 and/or JP '916.

In view of the foregoing remarks and amendments Applicant respectfully submits that claims 1-3 and 7-8 are not rendered obvious by DE '129 either alone or in combination with JP '916. Accordingly, Applicant respectfully requests withdrawal of the rejection to the claims and that the application be promptly passed to issue.

Applicant has enclosed a request for a three-month extension of time. Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully Submitted,


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